

# Practice Exam

## Section I- Number Sense

1. Evaluate the following.

$3^4$	$12 \times 0.2$	$21 \div 0.3$
$1000 - 256$	$\sqrt{81}$	$0.5 + 1.04$
$5^3$	$0.54 \times 1.1$	$4.5 \div 9$
$16 - 4.65$	$\sqrt{16}$	$12 + 1.4$
$8^2$	$0.02 \times 0.06$	$0.28 \div 0.7$
$1.2 - 0.12$	$\sqrt{144}$	$1 + 20.2$

2. List all factors for each of the following numbers.

12: \_\_\_\_\_

9: \_\_\_\_\_

30: \_\_\_\_\_

36: \_\_\_\_\_

3. List the first six multiples of the following numbers.

4: \_\_\_\_\_

3: \_\_\_\_\_

7: \_\_\_\_\_

15: \_\_\_\_\_

4. Find the lowest common multiple (LCM) and greatest common factor (GCF) of

12 and 8.

LCM: \_\_\_\_\_

GCF: \_\_\_\_\_

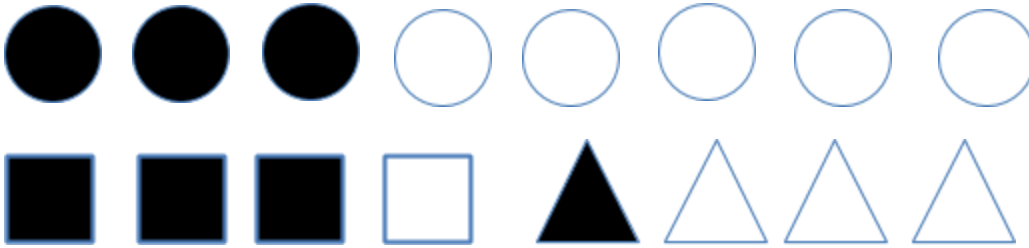
16 and 20

LCM: \_\_\_\_\_

GCF: \_\_\_\_\_

## Section II- Fractions and Decimals

1. Use the following diagram to answer the following questions. Remember to always reduce your fractions/ratios if you can.



- What fraction of all the shapes are white triangles?
- What fraction of all the triangles are white triangles?
- What fraction of all the shapes are white circles?
- What is the ratio of black circles to all the circles?
- What is the ratio of white circles to black triangles?
- What is the ratio of black circles to all the triangles?
- 37.5% of the circles are \_\_\_\_\_?
- 50% of the shapes are \_\_\_\_\_?
- 75% of the triangles are \_\_\_\_\_?
- What is the number of white triangles out of total triangles represented as a decimal?

k. What is the number of white circles out of total shapes represented as a decimal?

2. Which ratio is bigger? Show all of your work!

2:5                      or                      3:7

7:9                      or                      3:4

10:19                      or                      21:38

Which fraction is bigger? Show all of your work?

3.                       $\frac{10}{15}$                       or                       $\frac{6}{10}$   
                          $\frac{3}{5}$                       or                       $\frac{4}{7}$   $\frac{10}{9}$   
                          $\frac{12}{11}$

4. Calculate the following. Remember to always reduce if you can.

a.  $\frac{2}{3} + \frac{1}{4}$                        $\frac{5}{6} + \frac{3}{5}$

b.  $\frac{3}{5} - \frac{1}{3}$                        $\frac{1}{2} - \frac{3}{7}$

c.  $2 \times \frac{7}{10}$                        $6 \times \frac{5}{3}$

d.  $1 \div \frac{2}{9}$                        $8 \div \frac{4}{5}$

5. Convert the improper fraction to a mixed number and the mixed number to an improper fraction.

a.  $\frac{9}{8}$        $\frac{9}{5}$        $\frac{11}{7}$        $\frac{16}{3}$        $\frac{100}{6}$

b.  $3\frac{4}{5}$        $1\frac{2}{9}$        $2\frac{1}{10}$        $4\frac{8}{13}$        $5\frac{1}{25}$

6. Complete the following chart. Reduce your fraction if you can.

Fraction	Decimal	Percent
$\frac{2}{10}$		
	0.8	
		9%
$\frac{3}{20}$		
	1.2	
		15%

## Section III- Patterning and Algebra

1. Calculate the following.

a.  $(-7) \times (+3)$

$(+18) + (-4)$

b.  $(+3) - (-10)$

$(-14) \div (+7)$

c.  $(+5) \times (-4)$

$(-1) + (-6)$

d.  $(-2) - (+12)$

$(-20) \div (-2)$

2. For each of the following patterns, describe each pattern and then find the 100<sup>th</sup> term.

a. A, B, C, D, E, A, B, C, D, E, A, B, C, D, E,....

b. L, U, C, Y, L, U, C, Y, L, U, C, Y,....

c. 4, 8, 12, 16, 20, 24,....

d. 1, 4, 7, 10, 13,....

e. -2, 5, 12, 19, 26,....

3. Solve the following equations.

a.  $-2 + x = 14$

b.  $7z = -35$

c.  $2y + 11 = 17$

d.  $\frac{3}{z} = 20$

e.  $7 - 2g = 15$

f.  $4 + \frac{v}{6} = -6$

4. Evaluate the following expressions for  $m = -2$ .

a.  $-3 - m$

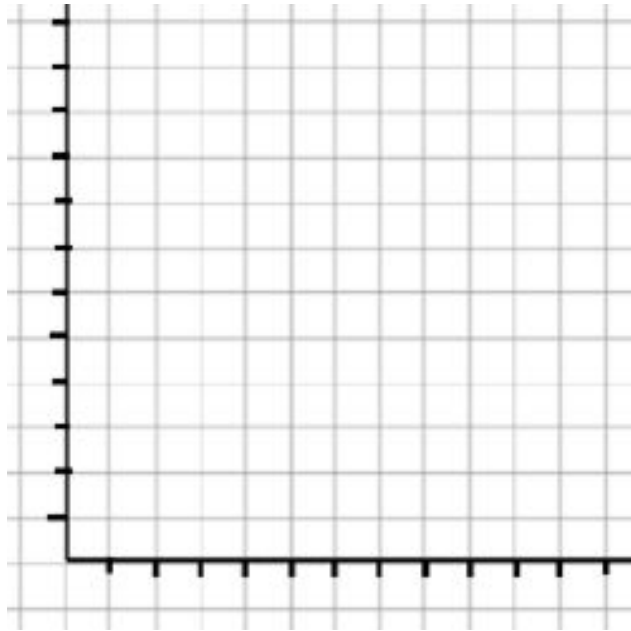
b.  $-5m$

c.  $55 + 3m$

d.  $\frac{20}{m}$

5. Draw a Line graph for the given information, include a title and labels.  
Output = Twice the input, minus 1

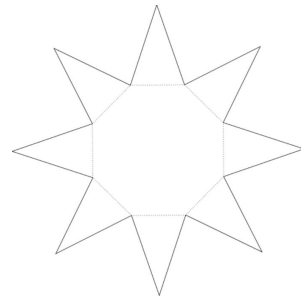
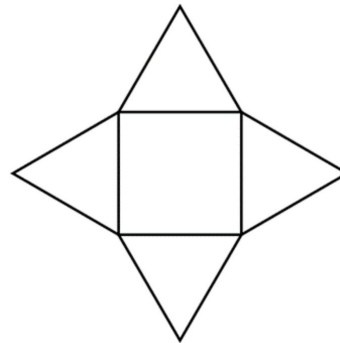
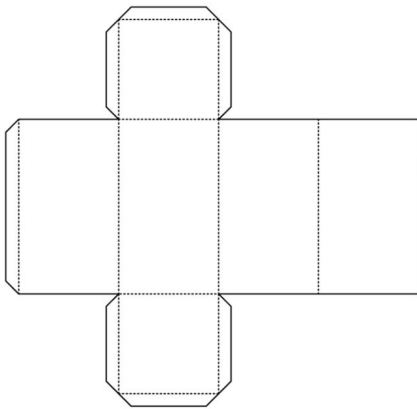
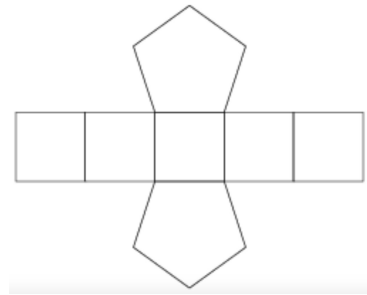
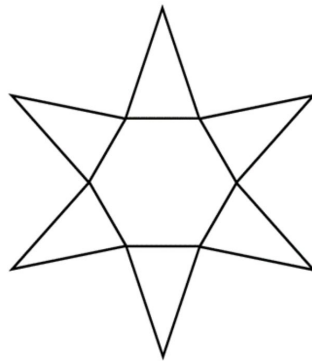
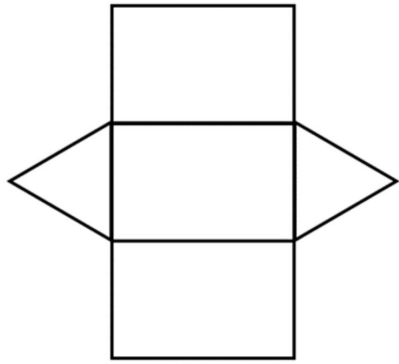
Input	Output
1	
2	
3	
4	
5	
6	
7	





## Section IV- Measurement

1. Identify the 3d shape that this net makes.



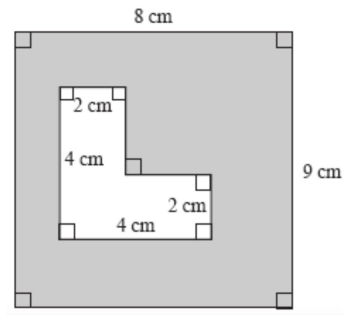
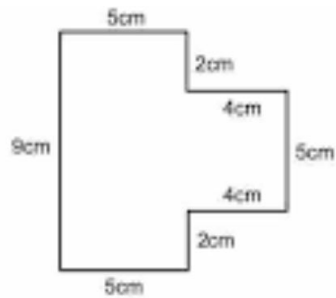
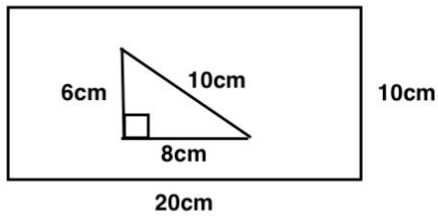
2. Draw this shape from the front, top and left side.



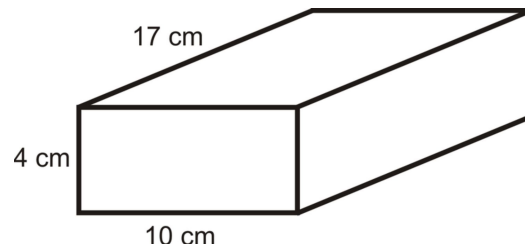
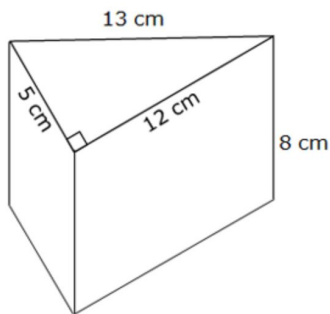
3. Convert each of the following to the given units.

\_\_\_\_\_ mm = \_\_\_\_\_ cm = 520 m = \_\_\_\_\_ km

4. Find the area **and** perimeter of the following shapes



5. Find the volume **and** surface area of the following.



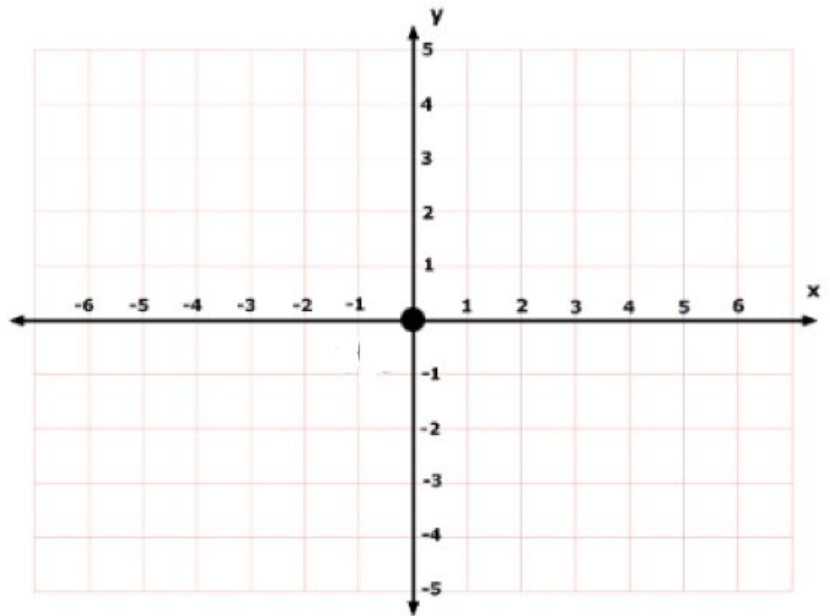
## Section V- Geometry

1. Draw any angle and find the angle bisector of that angle.
2. Draw any line, find the perpendicular bisector of that line.
- a. Construct a triangle  $\triangle ABC$  with the following measurements.  
 $\angle A = 30^\circ$ ,  $AB = 5\text{cm}$  and  $AC = 6\text{cm}$ .

- b. Measure and label the other two angles and side  $BC$  on the triangle above. [3]

1. Follow the instructions written below.

1. on the grid, put a dot at  $(0,5)$
2. from here draw a line to  $(-1,2)$
3. from here draw a line to  $(-4,2)$
4. from here draw a line to  $(-2,0)$
5. from here draw a line to  $(-2,-3)$
6. from here draw a line to  $(0,-1)$
7. from here draw a line to  $(2,-3)$
8. from here draw a line to  $(2,0)$
9. from here draw a line to  $(4,2)$
10. from here draw a line to  $(1,2)$
11. finish off by drawing a line to where you started



## Section VI- Data Management

1. Find the mean and median of the following three fractions.

$$\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$$

2. Create a data set that contains all of the following information.
  - a) There are 5 whole numbers in this set.
  - b) The median of the set is 8
  - c) The mode of the set is 6
  - d) The range is 12.
  - e) The mean is 10.
3. For the following questions, we are using traditional coins with one side heads and one side tails, traditional 6-sided dice labeled 1-6, and a traditional deck of cards consisting of 52 cards.
4. What is the probability of rolling a 3 with one die?
5. What is the probability getting a head and rolling a prime number?
6. What is the probability of drawing the eight of spades and rolling a number less than 5?
7. What is the probability of drawing a card and rolling a die such that sum of the values adds to 8 (note these are dependent events)?

## Formulas

### Square/Rectangle

$$A = b \times h$$

### Trapezoid

$$A = \frac{(a+b) \times h}{2}$$

### Parallelogram

$$A = b \times h$$

### Triangle

$$A = \frac{b \times h}{2}$$

### Prism Volume

$$V = AH$$

### Surface Area

$$SA = 2A + PH$$

### Experimental Probability

$$P(\text{success}) = \frac{\# \text{ of successes}}{\# \text{ of trials}}$$

### Theoretical Probability

$$P(\text{success}) = \frac{\# \text{ of ways to achieve a success}}{\text{total } \# \text{ of possibilities}}$$